Master Diver in Navy Has Official Trophies of Thrilling Undersea Life

Hero of Squalus Rescues Has Medal of Honor And Naval Cross

Submarine Disasters Gave Field for Washingtonian To Achieve Record

By Robert A. Erwin.

A life of adventure underneath the sea has been the role of William Badders, 38-year-old master diver of the United States Navy, ever since that day back in November, 1925, when he volunteered as a diver in the submarine S-51 disaster.

The S-51 plunged to the bottom and stayed there, 132 feet below the surface of the Atlantic, off Block Island, after colliding with the steamer City of Rome. There was a shortage of divers for rescue and salvage operations at the time, and Mr. Badders, member of the ship's company on the salvage boat Falcon, offered himself as a pinch-hitter.

Today, Mr. Badders, who lives at 1610 Ridge place S.E., can look back upon 15 years of deep-sea diving, service in the S-51, the S-4 and the Squalus submarine disasters, and to heroic duty that has brought him the Congressional Medal of Honor and the Naval Cross. He rescued 18 of the 33 men saved from the Squalus, and with another diver went down a third time in the diving bell to make sure there were no more survivors.

Badders helped organize the deep sea diving school at the Navy Yard here, and in the summer of 1938 made the world's record dive of 500 feet in the Navy Yard diving tank.

Make Trip by Air.

Clad in his 200-pound suit, Badders was diving in the tank when news of the Squalus disaster was flashed to the Navy Yard on May 23, 1939. He and other divers were ordered to stand by for a plane flight to Portsmouth, N. H., near where the Squalus had sunk to a grave 240 feet below the waves.

Once they were on the ocean surface over the Squalus, the first job of the divers was to rescue the 33 survivors who remained alive in a forward compartment of the submarine. Four trips were necessary to bring them out safe and sound. Badders brought up nine men on each of two trips down in the diving bell.

This was a job on which there could be no mistakes, because mistakes would have been fatal to one or to many men. The diving bell, once it is attached to the hatch of a submarine, temporarily becomes part and parcel of the "sub." The ascent begins only after the hatch has been tightly closed and the men who have left the sub are in the bell's upper compartment.

"They all climbed into the bell by themselves," Badders said, as he described the condition of the Squalus survivors when help reached them. "They were calm, cool and collected, but they were extremely cold on account of their exposure to the cold air. All of them were joking and laughing."

Badders was not in the bell on its almost ill-fated final rescue trip to the Squalus. This was the trip in which Lt. Oliver Naquin, the subcommander, was brought up along with several of his men. The all-important down-haul wire became fouled and the bell was suspended deep in the sea for four hours before the wire was straightened and ascent was made safe again.

The real heroism of Badders and his companion diver, John Mihalowski, 28, came after the 33 men had been rescued. They were sent below to make sure no one was alive in the torpedo compartment of the Squalus. They believed this portion of the vessel, according to information from Lt. Naquin, was flooded, but nothing could be left to doubt.

Badders and Mihalowski descended at 40 feet a minute to the bottom, where the pressure was 109 pounds to the square inch and where the pressure in the lower part of the bell had to be equalized with the pressure of the water in the submarine. Otherwise their own death would have been the result.

When the diving bell touched the Squalus' deck, the divers in the upper compartment of the bell turned on compressed air and forced from the lower chamber the water caught there as the bell settled on its gasket. After the pressure had built up enough suction to hold the chamber to the submarine, the divers went down through the bell's hatch and fastened its large hook bolts to the deck. Then they climbed back to the interior of the chamber and closed the hatch.

The acid test, that of equalizing the pressure, was next. Slowly but surely the gages went up until 109 was reached. Deck crews on the Falcon waited with bated breath. It seemed as if hours were passing. Finally the voice of Badders came from below with the news, "Okay, the compartment is flooded."

Badders then dropped down to the torpedo hatch and raised it slightly. It was full of water that began to work up from the partially opened hatch. Badders knew by this time that the torpedo room was flooded and that no man in there could be alive. The water was dark and muddied, and, fortunately, he saw nothing else. He climbed back up into the bell. The pressure process was reversed, the bell was disconnected and then Badders and Mihalowski went back to the surface.

Learns of Award.

This was last May, and on January 6 of this year, Badders received from President Roosevelt a letter advising him he had been awarded the Congressional Medal of Honor "for extraordinary heroism in the line of his profession during rescue and salvage operations following the sinking of the U. S. S. Squalus on 23 May, 1939."

"During rescue operations," said the President's citation, "Badders, as senior member of the chamber rescue crew, made the last extremely hazardous trip of the rescue chamber to attempt to rescue any possible survivors in the flooded after portion of the Squalus. He was fully aware of the great danger involved in that if he and his assistant became incapacitated there was no way in which either could be rescued. During the salvage operations Badders made important and difficult dives under the most hazardous conditions. His outstanding performance of duty contributed much to the success of the operations and characterizes conduct far above and beyond the ordinary call of duty."

Thus Badders added the greatest of all awards to his collection. He received the Naval Cross for his work in the S-51 disaster and was commended highly for his salvage services in the case of the S-4, which went down off Provincetown, Mass., in December, 1927.

Even naval commendations couched in formal terms and form can tell the stories of heroic deeds. Badders' commanding officer, in a report to the officer in charge of salvage operations on the S-51, wrote:

Pontoon Submerged.

"Finally on the occasion of the grounding of the S-51 in the East River, Badders together with the salvage officer, Lt. Comdr. Edward Ellsberg, (C. C.), U. S. N., and one seaman were working on one of the pontoons which was being resunk in order to raise the bow off the reef, the chains of the pontoon being suspended at this time from a derrick; the vent valves on top of this pontoon had been temporarily removed in order to permit the pontoon to flood faster. Due to the swell from a passing steamer an extra strain was put on the slings from the derrick carrying them away and allowing the weight of the chains to come back on the pontoon, submerging it under the bow of the derrick.

"Under these conditions," continued the commendation, "Badders together with the officer and the seaman on the pontoon wholly disregarded all questions of their personal safety and with the pontoon submerged stayed on it and used his thumbs to plug the openings left by the vent valves in order to keep the pontoon from losing all its buoyancy and sinking alongside the S-51.

"Badders remained submerged up to his neck on this operation until wood plugs could be brought and new valves finally installed. In view of the above instance of courage and devotion to duty, it is recommended that William Badders, engineer 1st class, be promoted to the rank of chief machinist mate as a partial recognition and reward for the bravery and the energy he displayed which in a desperate situation greatly contributed to the final successful conclusion of the salvage work on the U. S. S. S-51."

Philippine Diving.

All of Badders' adventures have not occurred on submarine salvage work. For example, he recalled diving operations when he was stationed in the Philippines. A bunch of coral snakes kept him company for several uncomfortable minutes when he was diving in Marvalis Bay near Manila.

"My light in the water attracted the snakes," Badders recalled. "I thought they were eels at first. Some of them wiggled into the steel screenwork of my helmet. I turned out the light and, fortunately, the snakes departed. You can rest assured I quit diving around there. Of course, coral snakes usually don't strike unless they are molested. Filipinos often bring them up in their fishing nets. When this happens, they pick up the snakes, swing their heads against the side of the boat, and throw them back into the water."

Badders has a Yangtze Patrol Medal, given him for 3 years of service in Chinese waters during the first Chinese-Japanese trouble of the early 30s. He remembered a close call with death, unknowingly at the time, when a Japanese crew abandoned a burning ship in the Yangtze River.

American sailors were assigned to put out the fire. "We fought the blaze for 24 hours and finally brought it under control," Badders said. "We thought the boat was carrying a cargo of coal. The fire didn't reach the cargo, and after it was out we discovered the cargo was high-test aviation gasoline."

Badders is tall and of medium build, with straight reddish blond hair. Even after 15 years of deep-sea diving his nerves are good and he discussed his work in a modest, matter-of-fact fashion. He is now stationed at the Navy Yard, and with his wife and two children lives only a block from Anacostia High School.

The diver is a native of Terre Haute, Ind., where he enlisted in the Navy in May, 1918. After service at the Great Lakes Naval Training School, he went on the old battleship U. S. S. Wisconsin for the duration of the World War.

Except for playing first base on the Terre Haute Three-Eye League baseball team in 1919, he has been in the Navy ever since.

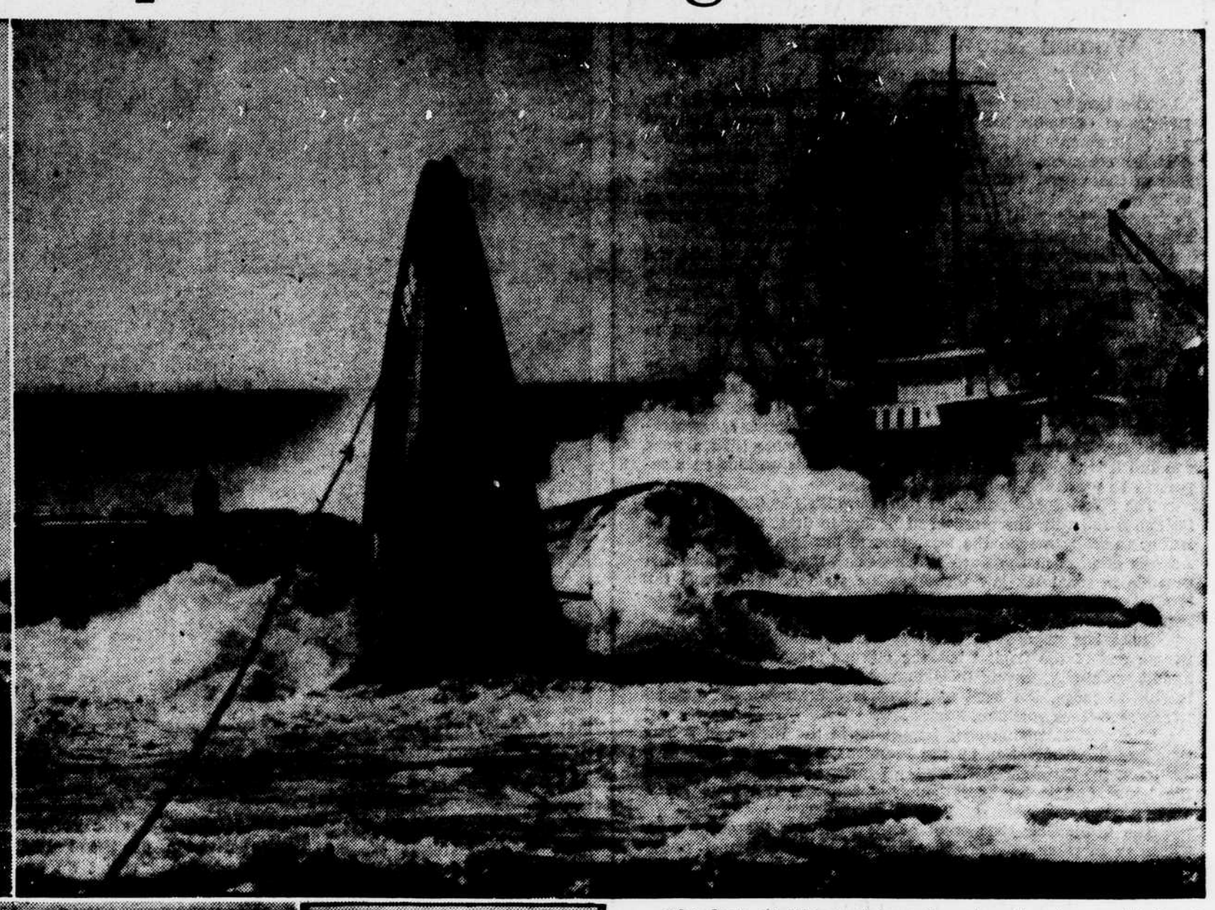
Badders has helped train many younger divers and has experimented widely with the diving bell and the Momsen lung. After making the 500-foot tank record here in the summer of 1938, he went to Portsmouth, N. H., and from the Falcon made a record ocean dive, this time of 402 feet, or 102 feet deeper than a diver had ever descended in the open sea before.

Recalling the occasion, he said "it was cold and dark down there." Come to think of it, "cold and dark" have a particular meaning to him.

Seated in his own living room, the diver concluded the interview with a little debunking. He has never had an encounter with a shark or an octopus in the sea.

"If an octopus wrapped himself around a diver, the diver could build up the pressure inside his suit to the point where the octopus couldn't put on the squeeze," Badders explained.

As for sharks, he said, "they are scared of divers and never bother them, because, after all, a diver is a pretty weird-looking mess in the water."

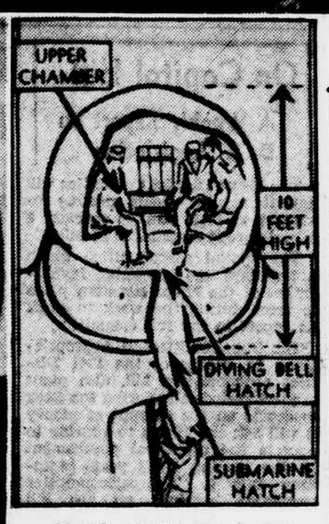


The bow of the sunken submarine Squalus as it burst forth from the sea and then dived back to the bottom when the Navy tried to raise it. —A. P. Wirephoto.

At top: William Badders, master diver of the United States Navy, whose heroic duty has won him the Congressional Medal of Honor and the Naval Cross.

Below: Secretary of Navy Edison congratulating Mr. Badders, after conferring the Congressional Medal upon four divers for their hazardous duty in the Squalus disaster. Left to right, the others are Edward Mihalowski, Orson Crandall and James McDonald.

—Navy Department Photos.



Sketch of the Navy's submarine diving bell, which accommodates six or eight men. —A. P. Photo.

1,000 Baltimoreans Travel To Daily Work in D. C.

Various Reasons Given by Those Who Have Been Led to Establish the Practice

By Robert Bruskin.

No matter how luxurious the train, to 840 daily commuters from Baltimore, it's just the "yawn express."

An aura of weariness surrounds the men and women who spend an average of three hours traveling by train each day with the rising sun to Washington jobs and returning at night.

Pennsylvania Railroad officials estimate 600 persons buy commuter tickets to Washington each month in Baltimore. The Baltimore & Ohio Railroad carries 240. The Greyhound and Safeway bus lines add several dozen more, and although the number is any one's guess, a large group commutes by automobile. A conservative estimate would place at 1,000 the men and women who earn their bread in Washington and eat it in Baltimore. These figures do not include those traveling from outside of Baltimore's city boundary.

The snowdrifts may be deep or the rain heavy, but commuters must rise early and wait at draughty street corners for trolley cars, bleakly unappreciative of the first straggling rays of the sun. Red-eyed and pink-nosed, they wait resignedly for trains in Baltimore's depots or dash the last hundred yards for the coaches.

They scamper for seats over the eerie postures of passengers who have ridden through most of the night on expresses from the North and West, and nap fitfully in varying stages of dishabille. Up ahead, blinds are still drawn in the sleeping cars.

On some luxury trains, a few coaches may be added for commuters.

At a mile-a-minute pace, the train speeds the 40-odd miles through back yards, automobile graveyards, rolling meadow and straggly forests, all strangely unbeautiful to the seasoned commuter.

Conversation Halts.

Conversation is at a standstill. Friends from the same Government offices nod hello. Occasionally, they talk in tired tones for a few seconds and relapse into quietness. When they do converse, it's generally in terms of slumber: "Guess I'll get to bed early tonight." . . . "Generally sleep Sunday and catch up." . . . "Boy, I'm tired." . . . "Got to bed early last night." . . .

As a group, commuters must be exceptionally well up on current events, for the person who boards the train without at least one newspaper is a rarity. By the time the more nervous passengers are donning coats, most have passed through the sports section and are immersed in the financial columns.

Women, usually about one-third the number, are more likely to be reading books. Usually they appear less tired by the grind, although they doubtlessly prepare meals at night for husbands.

The number of commuters has doubled in the past five years, and their routine seldom varies, say veteran conductors, who somehow appear cheerful and fresh as a daisy among the unsmiling passengers.

There are at least 55 trains each day on the two lines, and the commuter, who buys monthly tickets at $17.25, is seldom late for work if he misses his usual train.

Workers in the Navy Yard customarily travel on trains between 6 and 7 a.m. Clerks and minor executives prefer those between 7 and 8. Higher executives, generally carrying brief cases, patronize those an hour later.

Reasons for Practice.

Why do they commute? Reasons vary.

"Well, it's like this," said the middle-aged metal worker in the Washington Navy Yard: "I've been in the shipbuilding business in Baltimore for almost a quarter-century. Back about seven years ago there wasn't much work. So I got a Government job—in the Navy Yard. My kids were born and brought up in Baltimore and my wife has all her relatives there. They don't want to move. Besides, the Government might lay me off and I'd be out of luck because there are no other shipbuilding plants around Washington. I've been piling up a lot of seniority at the Nevy Yard and if I'd give up the job now I could probably get a good job in Baltimore—but you know what civilian shipbuilding is like. After the war I'd probably be out on the street again. You can get used to commuting after a while—and I get good pay."

The woman commuter frowned at being interrupted. She was reading "Gone With the Wind." She was young and chic.

"I'm from Detroit, and so is my husband. He got a job with Social Security in Washington and then was transferred to Baltimore. It was kind of expensive living in Washington, so I got a job in the Commerce Department. When my husband was transferred I decided to keep on working because my salary helps a lot. I hope he'll get transferred to Washington. It's a swell city."

The man reading the comic page explained:

"Well, I'm a Baltimorean and I married one. Some day I hope to get a job back home, so I'm staying there. I don't think my job will last after the next election, anyway, so I'm not taking chances." He was a clerk in the Security and Exchange Commission.

The grim-faced, elderly man, who must have been an executive, judging by the size of his well-stuffed brief case, testily crumpled the financial section, and explained: "Yes, I'm a commuter. I like to travel, that's why."

Forest Fire Crews Are Trained for Efficiency With Air Bombs and Smoke Jumping

Explosives Are Used To Keep Flames Under Control

By Marvin Cox

It does happen here. Airplanes roar toward their objectives, circle over their targets, and then, after a quick sight at the marks on the earth below, discharge their bombs and speed away. Again they roar in over their targets, send down another charge and speed back to their distant base.

This happens here, not in Europe, nor yet in military bombing practice, but in peaceful neutral America. Fortunately, however, the targets are not crowded cities and innocent people, but forest fires. The United States Forest Service is experimenting in an effort to find means of controlling small fires in remote areas by means of aerial bombs. While warring nations are using incendiary bombs to set cities afire, the Forest Service is attempting to use similar means of combating forest fires.

It is not hoped that bombs will be developed to extinguish fires completely, but rather that bombs can be made that will control small blazes in isolated areas until regular fire-fighting crews can arrive. Hours and sometimes days are required for fire fighters to traverse the rough, primitive country to the point where the fire is raging. If aerial bombs can prevent the spread of these fires—airplanes of course can reach them usually in minutes—the blazes would not be out of hand when the fire patrols reach them.

Promises Most.

This work is still in its experimental stage, and up to now the most effective bomb discovered is one containing a 10 per cent solution of monoammonium phosphate. Foams, liquids, chemicals and even dust have been tried, but the monoammonium phosphate solution shows the greatest promise.

Another recent advance in the aerial war against forest fires—fires, incidentally, that destroy millions of dollars' worth of timber each year—is the development of "smoke jumpers." These fire fighters leap from airplanes and descend by parachutes to the blazes below, plummeting down through trees and foliage to begin control work on a fire that unless checked may destroy thousands of acres of forest.

Again this work is designed to combat flames in remote areas miles beyond roads and trails.

These jumpers, attired in special suits and equipped with new devices for their protection, look like men from Mars or a nightmare from the brain of the creator of "Oaky Doaks." The suit is streamlined from head to foot, and features a neck brace with a wire mesh in front which permits the jumper to see but protects his face from the cuts and scratches that would inevitably follow his descent through trees and brambles. A parachute landing in a mountain forest is far different from a descent into an open field or an airport.

The jumpers' harness, too, is specially constructed. The standard type harness handicapped the jumpers when they landed in trees, the pressure sometimes being so great that the men were unable to unsnap the connections and get free. To overcome this difficulty the smoke jumpers' harness, instead of being an integral part of the riser straps, shroud lines and canopy, was made a detachable unit, allowing the fire fighter to detach himself from the chute and reach the ground by a rope which he carries.

This special paraphernalia, with the rope dangling down from the jumper's side, makes this fire fighter look a figure from another age.

Drop Tools to Crews.

The Forest Service is an experienced hand in still another method of aerial forest-fire fighting. This is in dropping tools and supplies to fire crews on the ground. So proficient have the Forest Service men become in this delicate work that it is said they can drop anything from a crate of eggs to a radio, several hundred, or even a 1,000 feet, with but negligible breakage.

When the fire fighters reach a remote blaze where days, perhaps, are required to get it under control, supplies are rapidly used and new tools and equipment needed. Airplanes quickly transport the necessary materials, and by skillful practice they can be accurately and safely dropped by means of specially designed parachutes. On the Chetco fire in Oregon, for example, airplanes were used almost exclusively to deliver supplies and they successfully dropped more than 110 tons of materials.

Light objects may be dropped directly, but most of the supplies delivered by air settle down to earth attached to parachutes. These were developed by the Forest Service after much trial and error, and they are simple and economical to make. Common burlap sacking is used for the canopy. With this sacking and sufficient sash cord to make four 11-foot shrouds, the forest flyers will safely put down a bale of hay, a tin of gasoline, parts for a pump or any other needed article.

Packages dropped from 'chutes usually range in weight from 60 to 100 pounds. The size of the parachute depends on the weight of the article, and it has been found that the load on the 'chute should be in the ratio of one pound for each square foot of canopy area. In some cases, where heavier or more delicate objects must be dropped, the Forest Service men use multiple parachutes, two or three, side by side.

Provide Marker.

When materials are dropped in forested or brushy areas, it is often difficult for ground crews to find the packages. This difficulty is met by a special marker, a long, yellow streamer tied to the top of the parachute.

Accuracy in hitting the target outlined by the ground crews is, of course, striven for. The pilot approaches the target heading directly into the wind, and when the bundle is dropped, the pilot swings into a turn, the dropper, meantime, watching his marksmanship. The plane heads back toward the target and the next article is sent floating down on the parachute. As each article is discharged, the dropper spots the landing with reference to the target, usually a piece of cloth or a smoke smudge. He indicates on a map the point at which each piece lands, and then, when all of the supplies have been sent down, he drops the map overboard for use by the ground crew in finding any articles that may have been carried wide of the mark by wind or other factors.

Army bombers do their bombing from great altitudes to escape anti-aircraft fire, but the flying forest-fire fighters discharge their cargoes of supplies from the lowest possible altitude to insure accuracy and lessen the danger of breakage.

The dropper's job is a delicate one. He must be a good judge of distance and timing, and able to get rid of his cargo under conditions that are sometimes adverse. No bomb sights are used, the dropper simply aiming at the target by the vertical door jamb of the plane and turning an article loose when the machine is directly over the mark. He wears a lineman's belt securely strapped to a structural member of the fuselage to prevent a sudden jolt or shaft of air from plunging him downward with the bundle. He holds both the package and its attached parachute in one hand, and at the proper moment, turns loose, sometimes, to make sure it gets a good start, giving the cargo a strong shove with his foot.

The accuracy attained by the Forest Service cargo droppers is sometimes amazing.

Just any plane is not adapted to the forest-fire work; a high-wing cabin monoplane with the door back of the wing struts is the type preferred, and numerous other special features are required. However, it was not until late last year that the Forest Service acquired a plane of its own. Before that privately-owned planes were used under a contract arrangement.

This aerial fire fighter of the United States Forest Service is descending by parachute to a small remote blaze which he will try to hold in check until the regular ground fire fighters arrive. —Photo by United States Forest Service.

Expert Flyer Hired as 'Engineer Pilot' by Government

After trying various types of planes, including autogiros, the Forest Service finally selected a model with a 440-horsepower special motor. Among the unusual features of this almost handmade machine are three quickly detachable passenger seats which can be removed to provide cargo space, extra large frames for both the main door and the auxiliary door, the auxiliary door, too, being a part of the specifications.

On the right side of the cockpit, the window is built of sufficient width and depth to permit the co-pilot to project his head, right shoulder and arm outside the window and have a clear view both forward and downward. To protect the pilot from the propeller blast when he's in this position, a detachable windshield was included in the construction.

This new plane cannot, of course, do alone the work of all the planes that the Forest Service has used under contract. But it can do much of the more precise and delicate work that is required in combating forest fires with aircraft.

In August, 1938, the Forest Service employed its first "engineer pilot," a job that required the experience of a crack airman and many other qualifications as well. He had to be able to organize, direct and develop all forest-fire-control work; alter and remodel airplane bodies; possess scientific training in various fire-prevention and control work, and have enough additional qualifications to daunt the boldest applicant.

The man who was finally picked to oversee the air fire-fighting job of the Forest Service, which protects hundreds of thousands of acres of timber valued in the millions, was a West Point graduate, Harold C. King, who had been through the Army flying school and had hundreds of flying hours' experience, as well as scientific training.

And with Mr. King at its head, the Forest Service's aerial fire control work and experiments continue, looking toward the time when remote blazes will no longer be the perils that they now are, but susceptible to effect control by the Forest Service "air corps."